

ABSTRACT OF THE DISCLOSURE

The invention provides for exposing an extraocular (*i.e.*, non-ocular) region of a human to light during sleep, which enhances REM sleep. Also provided are devices to carry out the methods. Key timing parameters ensure effective REM enhancement
5 without adversely impacting a subject's circadian clock. The invention provides for improving cognitive function and performance in healthy individuals and in individuals suffering from a disease or disorder in which mental status is compromised.